

### Abstract

The object of the present invention is to design a photonic crystal fiber with high birefringence property such to preserve the polarization of optical signals transmitted through such fiber without implying to high manufacturing cost. For that a photonic crystal fiber is designed having at least the inner rows of the used longitudinal holes surrounding its guiding core following a parallelogram shape arrangement. This leads to a photonic crystal with an at most two fold rotational symmetry about a longitudinal symmetry. It is a particularly advantageous way to introduce a high birefringence which will guarantee to retain the polarisation of the transmitted optical signals.